New Kid on the Block

A grass-roots studio creates a space-age cartoon, Jimmy Neutron: Boy Genius, using off the-shelf software

BY BARBARA ROBERTSON

Like Lana Turner's discovery at a soda fountain in The Top Hat Cafe, it was being in the right place at the right time that launched Jimmy Neutron's rise to fame. "I was looking through an obscure 3D animation magazine centered on the program LightWave 3D and caught an image of Jimmy and [his robot dog] Goddard," says producer/screenwriter Steve Oederkerk. "For whatever reason, at that time almost all CG work was more photorealistic. This image struck me because it seemed fun. In the article, they said the guys had done a little short [film], so I started talking to them."

The year was 1995 and the guys were John Davis and Keith Alcorn of DNA Productions, a small studio in Irving, Texas, that had been doing commercial work for corporate clients in Dallas and independent short cel animations since 1987. This short was one of DNA's first attempts to use NewTek's LightWave to create 3D animated characters. "It was just Jimmy in his rocket with Goddard in the back seat. He flies up through space to the camera, introduces himself, dodges a couple of asteroids and flies away," says Davis. But the short won awards, and by the time Oederkerk called, DNA had a show bible written. Oederkerk and Davis showed Jimmy to Nickelodeon.

"They had some kooky ideas about this crazy kid who was half Bart Simpson and half Einstein and we just fell in love with him," says Albie Hecht, president of the film and TV entertainment divisions of Nickelodeon. "He was so much of a perfect Nick kid who has a sense of adven-

Jimmy Neutron and his best friend Carl Wheezer blast off to rescue their kidnapped parents. The characters and their rocket ships were modeled and rendered in NewTek's LightWave.

ture and invention but is still grounded in the everyday world that he struck an emotional chord for us. Visually, we thought it was a great style, what John calls a future retro style, evocative of the contemporary 'return to tomorrow' trend. And it was a CGI character, so we really felt we could do a lot with it across our division."

DNA and Oederkerk began collaborating on a pilot for a TV series—and on other projects. DNA's 3D animation television special Santa vs. the Snowman, produced by Oederkerk's O Entertainment, aired on ABC in 1997. In 1998, Oederkerk and Davis sent the pilot to Nickelodeon. "The Nickelodeon people flew to Dallas to meet us," Davis says. "They said they definitely wanted to talk to us about a TV show." But that wasn't the only thing on the collective Nick mind. "They said that what they'd really like to talk to us about was a feature film," he says. "I was astounded." In December, Paramount Pictures and Nickelodeon Movies presented the O Entertainment and Nickelodeon Production, Jimmy Neutron: Boy Genius, directed by John Davis and produced by Steve Oederkerk, John Davis, and Albie Hecht.

DNA convinced Nickelodeon to start with the feature first. "You can't base a feature on series assets because they wouldn't hold up on the big screen, but with the fea-

ture film first, we'd have most of the universe constructed," Davis says, "and because we go so many places, we'd have this big digital back lot that could be constantly reused and recycled and expanded from there."

First, the studio had to expand—it grew from 30 people to 150. "It was pure panic," Davis laughs. "No, actually, it was fun. We created a really freeform space. The building planners would say, 'You're crazy. No cubicles?' We gave everyone a budget they could spend on materials to build their own areas."

The production was more organized. "We had 24 months from script to screen," says Davis. "We departmentalized. We have an animation department, modeling department, lighting department, and so forth."

The script developed into a story about Jimmy Neutron, a boy genius, who, after being grounded by his parents for playing with rockets, decided it would be nice if there were no parents. He gets his wish. He wakes up one morning to find that his parents and all his friends' parents are gone. At first it's great, and then it begins to be not so great. Jimmy discovers that aliens abducted the parents. So now, not only do the kids want their parents, but also they have to fight for them. The aliens they have to fight are the "Yokians," green

The alien most responsible for kidnapping Jimmy's parents, "His Royal Runniness" King Goobot of Yokian (voiced by actor Patrick Stewart), is shown talking with his servant Ooblar (voiced by Martin Short).

gooey creatures that live inside glass and metal robotic egg-shaped shells. "They fly around in giant chicken ships and worship the god Poultra," says Davis. "It's hard to take them too seriously."

Cartoon Real

The crew created *Jimmy Neutron: Boy Genius* with commercial software: Light-Wave for modeling, lighting, non-character animation, some crowd animation, and effects; pmG Group's project:messiah for character rigging and animation; Adobe Systems' PhotoShop for texture painting; Magpie software from Third Wish Software & Animation for lip synch; and Alias|-Wavefront's Maya Fusion for compositing. Davis's partner Keith Alcorn, executive producer on the film, was lead character designer. The simplicity of the character design helped simplify the production.

"From the outset, I decided we were going to go with a cartoony design," says Davis. "I didn't want to get bogged down in cloth simulation or hair simulation. So we decided to make a sculpted, graphic look part of the design sense, which I like anyway for this project. I didn't want things to look too real."

"I don't look at CG as a way to replicate reality," he adds. "I think there's something special about coming up with outlandish designs and doing them in 3D, which gives you an immediate cinematic feel. You get a cartoon that has some realistic shadows and reflections, but it doesn't look like it belongs in the real world."

As it turned out, Alcorn's character design helped keep the rest of Jimmy Neutron's world cartoony as well. "The characters have huge heads with big hair, so to accommodate them everything has this top heavy feel," Davis says. Cars, for example, have huge bubble domes so the characters can fit in them.

Work on the sets and work on the characters happened in parallel. The characters were first modeled in LightWave, including the "dozens and dozens of facial targets for speech," according to Davis. Their skeletons were then added in project:messiah, which was used for animation. The animators began with body language and then
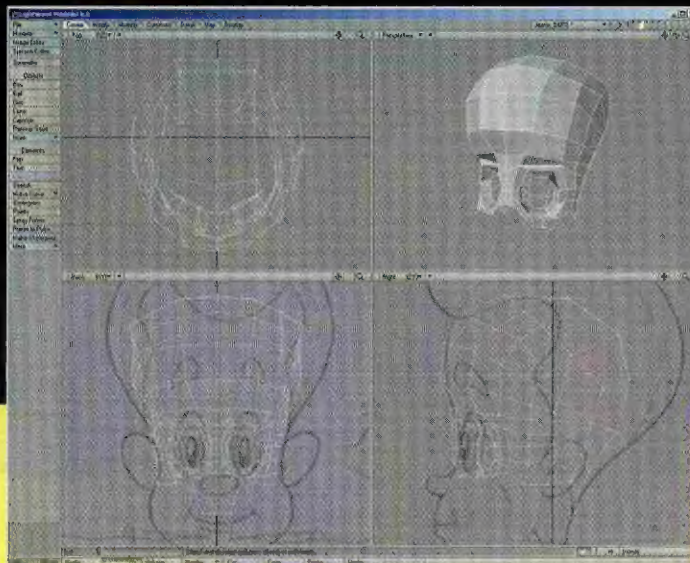
As these screen shots from LightWave show, Jimmy started life as a collection of points and polygons. At left, modelers have stitched his eye sockets into his head by placing new four-sided polygons between points. At right, his arm, which already wears a sleeve, is being attached to his shoulder by "welding" several points together to make one point.

Jimmy's Retroville Elementary classroom and teacher Ms. Fowl (top) along with his friends Sheen and Carl (bottom) are digital assets created for the film that can be used later in the television series.

added facial expressions and lip synch to match dialog recorded by the voice actors. "We follow a traditional style of animation in terms of pose to pose with antics and exaggeration and overshoot that you don't get with photorealistic animation," says Davis. "It's very caricatured."

Even the crowds were hand animated. "We would break it down in terms of how close we were going to get to the characters," Davis says. Characters closer to the camera had more articulation than those farther away. Also, to save animators' time, the crew would replicate characters, offset them, and swap out body parts to create differences between them. "We filled the Yokian arena with 6000 aliens that were based on about 30 animation loops." To create the 6000 Yokians, the crew used animated sprites, mapping the animations onto hypervoxel particles in LightWave. "We'd create a point cloud where we wanted the Yokian aliens to be," Davis says. To fill the arena, they put a point over each seat, replaced all the points with hypervoxel particle sprites, and randomly assigned different animated loops to them.

The sets, all modeled in LightWave, included several neighborhoods, the city of Retroville, Jimmy's room and his lab, an amusement park, several school environments, a shopping mall, the Yokian planet, and, of course, the rockets. The modeling department first created high-resolution versions of each, then low-res versions that were used by the animators. Once animation was approved, the characters were put into the high-res scenes.

To keep a cartoon look, the crew had to find off-the-shelf shaders that weren't designed to create realistic objects. "We don't have simplified characters in an overly lavish world," Davis says. "We tried to keep everything in the same universe." Similarly, Davis had to convince the lighting crew not to worry about reality because he would remove shadows he thought looked bad, and add colored lights without any concern about realism. "It's so liberating not to be locked into a photoreal style," he says. "You can just go with whatever looks cool."

Stay 'tooned

But when it came to cameras, Davis wanted a cinematic feel. "You can do all the things you can do in live action and yet you're dealing with something that couldn't possibly exist in live action," he says. "That, to me, is exciting."

Even though work on the film is finished, DNA has not finished working with Jimmy. During 2001, Nick created Jimmy Neutron games for the Gameboy. The online division's Jimmy Neutron Web site, which featured games, short films, and cliffhanger teasers that led to the film's release, will live on. And this year, DNA will create a television special titled "When Pants Attack" for Jimmy in the spring, with a weekly series, also in the works at DNA, planned for the fall.

"And you don't even have to be a big studio to do this," Davis says. "We're just guys in our garage working with programs we bought. Our garage got bigger, that's all. Hopefully, Jimmy will do well and that will open the doors to other companies that are where we were a couple years ago." 🔊

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